

The challenge of connecting universities to regional growth: territorial and higher education perspectives

John Goddard
Emeritus Professor

Louise Kempton
Senior Research Associate
Ranald Richardson
Principal Research Associate
Paul Vallance
Research Associate

Centre for Urban and Regional Development Studies (CURDS)
Newcastle University, UK



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SmartSpec

Context

- Research and Innovation Strategies for Smart Specialisation (S3) an *ex-ante* conditionality for member states and regions to receive EU regional cohesion funds (to bridge the innovation divide)
- Expectations at the EC, national and regional level for universities to play an active role in the design and implementation of S3 and in creating synergies with the non-spatial research and innovation funds (Horizon 2020)
- The challenge for universities **and** for regions in meeting these expectations
- Link to debates about the role and purpose of higher education in contemporary society in response to the question: *what are universities for?*
- Two distinct research and policy communities –(1) universities and HE systems with their own internal logic and (2) societal expectations of universities including their contribution to regional development
- S3 a learning journey for universities , regions and policy makers at the national and European level

SmartSpec FP7 Project

Work Packages and leads

(CURDS outputs relevant to role of universities in S3)

- Co-ordination: *Cardiff (Morgan & Healey)*
 1. Entrepreneurial Search Dynamics : *Groningen – McCann* (“Institutional barriers in Smart Specialisation: a systems failure perspective”)
 2. Social Innovation: *CURDS Newcastle – Richardson* (“Social innovation for an age friendly society”)
 3. Regions with Less Dynamic Innovation Systems: *Charles University Prague – Blazek*. (“Universities and smart specialisation in regions with less developed innovation systems”)
 4. Underpinning Effective Strategy Design: *Nauwelaers*
 5. Regional Living Labs: *Circle, Lund – Trippi* (“The co-evolution of regional innovation domains and institutional arrangements: smart specialisation through quadruple helix relations?”)
 6. Smart Specialisation in Practice- the Learning Journey *EURADA and ERRIN*

Living Lab Regions

Region	Country	NUTS level	Population (2013) (a)		EU Regional Policy Category	Regional Innovation Scoreboard Category (b)
			Total	Density (per KM ²)		
Pirkanmaa	Finland	3	495,000	40	More Developed	Leader (Länsi-Suomi)
Scania	Sweden	3	1,263,000	116	More Developed	Leader (Sydsverige)
Møre and Romsdal	Norway	3	259,000	18	N/A	Follower (Vestlandet)
Bremen	Germany	1	664,000	1,586	More Developed	Follower
Navarre	Spain	2	639,000	62	More Developed	Follower
PACA	France	2	4,950,000	158	More Developed	Follower (Méditerranée)
Northern Ireland	UK	1	1,827,000	135	Transition	Follower
Slovenia	Slovenia	1	2,059,000	102		
<i>Zahodna Slovenija</i>		2	<i>1,082,000</i>		<i>More developed</i>	<i>Follower</i>
<i>Vzhodna Slovenija</i>		2	<i>977,000</i>		<i>Less developed</i>	<i>Moderate Innovator</i>
Murcia	Spain	2	1,462,000	130	Transition	Moderate Innovator
Basilicata	Italy	2	576,000	57	Less Developed	Moderate Innovator
South Moravia	Czech Republic	3	1,169,000	166	Less Developed	Moderate Innovator (Jihovichod)
Észak-Alföld	Hungary	2	1,492,000	84	Less Developed	Modest Innovator
Lódzkie	Poland	2	2,510,000	138	Less Developed	Modest Innovator
North East Romania	Romania	2	3,279,000	91	Less Developed	Modest Innovator

The role of higher education institutions in shaping and implementing regional smart specialisation strategies (S3) in institutionally thin regions: key messages

- S3 requires different innovation actors to work closely together, including firms, knowledge producers, government and civil society itself (the end users of innovation and on occasion co-producers of knowledge), in so called 'quadruple helix partnerships '.
- S3 requires an institutional eco-system that fosters innovation. In some European regions these systems are relatively advanced but many others can be described as 'institutionally thin'
- In many lagging regions, HEIs are among the few sources of knowledge that can contribute to innovation. BUT Implementing smart specialisation is not just about focusing the spending of the ERDF on knowledge production
- On the contrary, S3 requires institutional change and inter-institutional capacity building within quadruple helix partnerships
- Also an integration of different policy areas and responsibilities, horizontally between different spheres of government, and vertically from the local and regional to national and European levels.
- More specifically at a European level between services responsible for research, regional cohesion and higher education

Institutional change within universities:
DG Education and Culture consultation themes around the
'Modernisation' of HE

- “Enhancing ‘relevance’ to society of learning and teaching”
- “Helping HEIs become strong regional innovators”
- “Ensuring education and research activities are mutually reinforcing”

A national higher education policy perspective: the Netherlands

- Ministry of Education, Culture and Science : *The Value of Knowledge : Strategic Agenda for Higher Education and Research 2015-2025*
- *“ This strategic agenda addresses a fundamental question. It asks what significance changes in the world and in our society hold for day to day life in our institutes of higher education. This question is of relevance because universities and universities of applied science do not operate in a vacuum, but rather in open connection with their surroundings”*

The link between HE modernisation and S3

- *‘In assessing the role of HEIs in the region it is useful to identify the steps needed to create a ‘connected region ‘in which the institutions are key players. Through this connection process institutions become key partners for regional authorities in formulating and implementing their smart specialisation strategies’*
- *‘They can contribute to a region’s assessment of its knowledge assets, capabilities and competencies, including those embedded in the institution’s own departments as well as local businesses, with a view to identifying the most promising areas of specialisation for the region, but also the weaknesses that hamper innovation’*

Supporting growth and jobs – an agenda for modernisation of Europe’s higher education system (COM (2011) (567)

The link to Research & Innovation

- *Universities must “ act as strategic institutions pulling together all their know-how to create bigger economic and social impacts. Smart specialisation calls on universities to do more”.*

Commissioner Geoghegan-Quinn

- *“The key to universities becoming strategic institutions is to take a **holistic** view of their activities, rather than treating them in isolation. By integrating research, teaching and external engagement, the knowledge created can have a much greater impact”*
- *“University management as well as academic staff need to become pro-active and move beyond mono-disciplinary and mono functional actions. However, EU and national incentive structures also need to change because they are overly biased towards research output and can hinder universities in playing this strategic role”*

Robert Jan Smits, Director General for Research and Innovation

Conclusion of the June 2014 high level conference on mobilising universities for Smart Specialisation

- <http://s3platform.jrc.ec.europa.eu/universities>

Regional innovation policy: a critique(1)

'A new policy model has emerged in the field of innovation and regional policy with a focus on high-tech, knowledge based or "creative" industries; building up of research excellence; attraction of global companies; and stimulation of spin-offs .It is often used in an undifferentiated manner for all kinds of regions. The specific strengths and weaknesses of regions in terms of their industries, knowledge institutions, innovation potential and problems are frequently not sufficiently taken into account. Furthermore, regions are often dealt with in an isolated manner, i.e. the interrelationships with other regions and with higher spatial levels (national, international) are left out of consideration'.

(Tödting and Trippl,2005)

Critique (2)

- The success of a region in pursuing a science-led strategy will be dependent on the presence of other (non-university related) economic factors supporting entrepreneurship and industrial development (access to finance, supplies of human capital, supportive governance environment, etc.) that are less likely to be a feature of poorer developed regions (David and Metcalfe, 2007).
- This highlights the dangers of equating 'research excellence' in universities with the ability for a regional economy to support innovation (Power and Malmberg, 2008).

The innovation systems perspective

(after Todtling and Trippl, 2005)

- Innovation as an evolutionary, non-linear and interactive process requiring intensive communication and collaboration between different actors – firms, other actors such as universities, innovations centres, financial institutions standard setting bodies, industrial associations
- The key role of hard or formal institutions (organisations and laws) and soft institutions (practises, norms, routines) in shaping the behaviour of actors and the interaction between them
- Regional differences in these capacities

The role of universities

- This perspective encompasses the contribution of universities to more generic horizontal capabilities of regions.
- Smart specialisation strategies in regions without the existing conditions (systems) to carry out effective entrepreneurial discovery processes will need to concentrate on fundamental capability formation.
- This can be achieved through strengthening inter-organisational connections between different parts of the innovation ecology (including universities and other public research organisations).
- The formation of strong, enduring partnerships of trust between universities, public authorities, and other actors is of particular importance to the development of smart specialisation in lagging regions .

The generative & developmental role of universities

(Gunasekara,2006)

- “Universities generate growth opportunities directly through knowledge capitalization activities such as spin-offs, licensing and participation on company boards. Universities analyse gaps in regional innovation environments and play a leading role in organizing networks for the development of a regional innovation strategy”
- “Universities shape the development of regional institutional and social capacities. This is accomplished by fostering regional networking and institutional capacity, through staff participation on external bodies; provision of informed and unbiased information and analysis; brokering networking between national and international contacts and key regional actors”.

Multifaceted roles of universities in regional capacity building

Generative

Research related (but not limited)
to regional priorities

Multi- and cross- disciplinary

Connectivity – knowledge nodes

Support regional analysis

Absorptive

Help build capacity to ensure local
firms absorb knowledge

Provide demand through teaching
and learning activities

Nurture social ties that drive RIS

Collaborative

Neutral regional brokers

Reach Out – need 'boundary
spanners

Reach In – Co-production of
knowledge

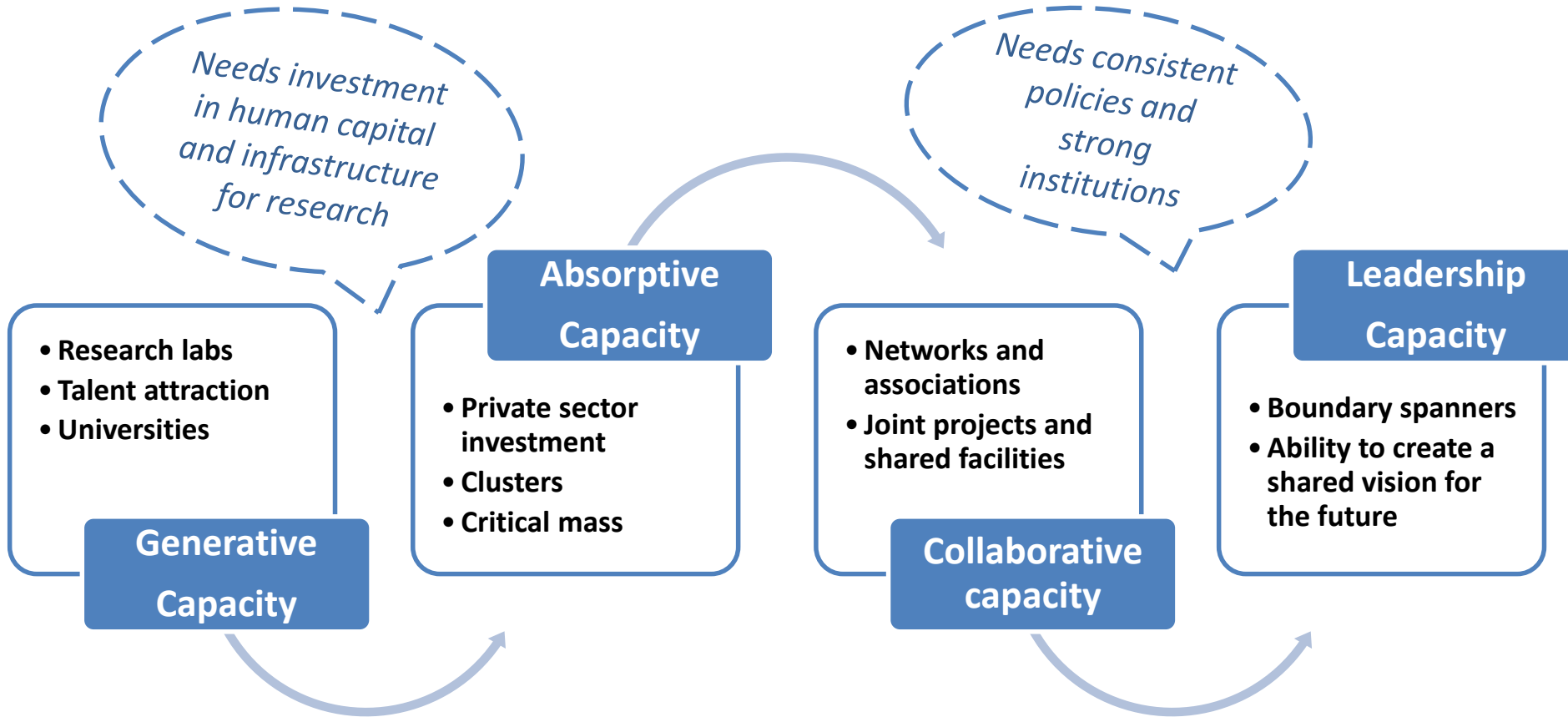
Leadership

Support regional vision and
partnership

Propose joint activities

Place marketing

Capacity building in regional innovation systems



What are the issues around university participation in S3?

Universities should be a critical 'asset' of the country and region; even more so in less favoured regionsbut

- Universities have often been absent from or had a minimal role in shaping and implementing regional innovation strategies
- Technology push model has dominated - potential contribution of the Arts, Humanities and Social Sciences to social innovation has been generally ignored
- The **principles** underlying why universities can be important agents in territorial development **in the round** not well understood by public authorities
- While a range of **mechanisms** have been used with varying success, they have generally not been coordinated strategically to produce the maximum impact.
- To achieve this means understanding and addressing a range of **barriers** and challenges, both internal to the universities and in the wider enabling environment

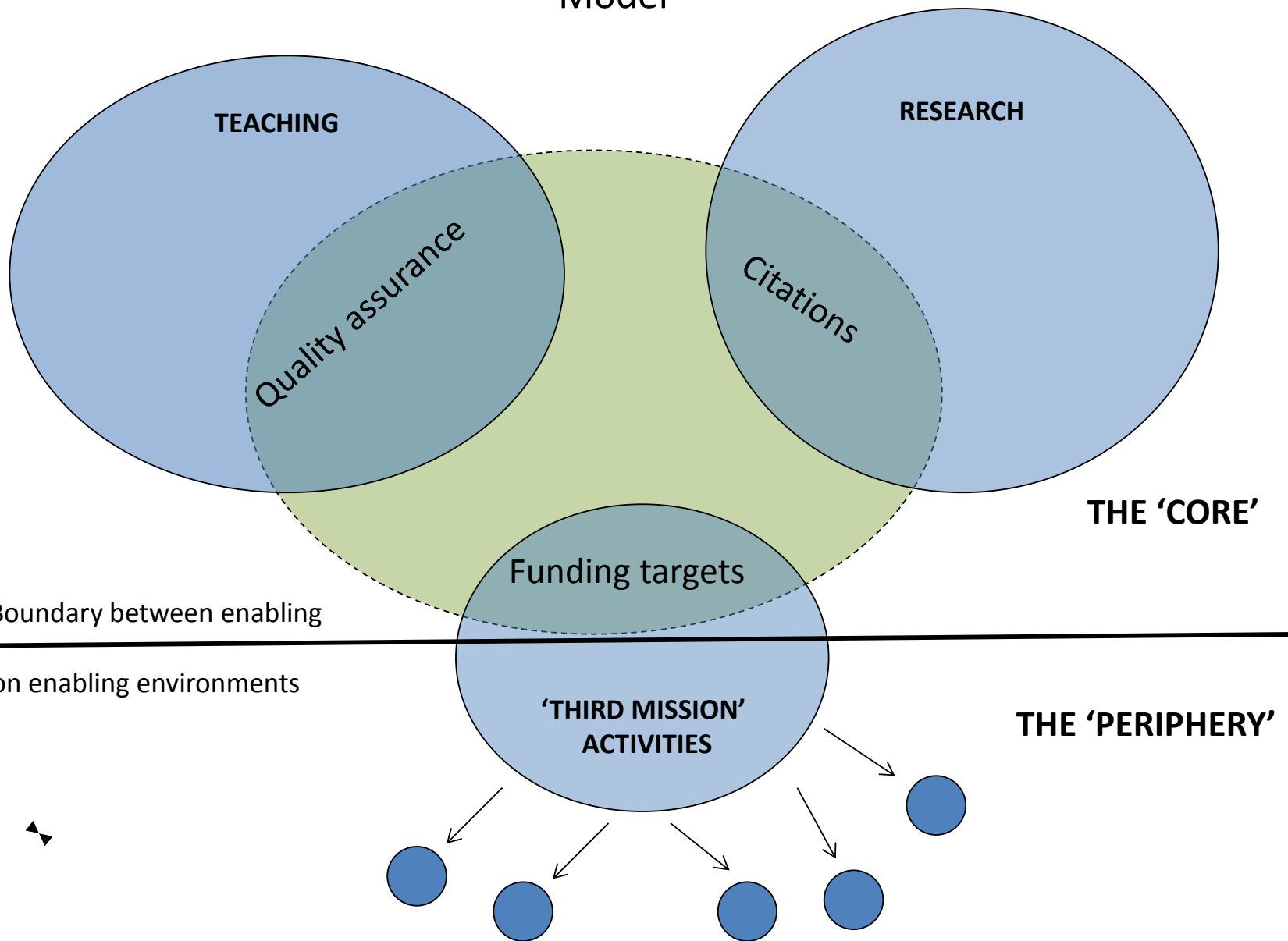
The barriers

- Financial incentives : who pays for capacity building
- Territorially blind HE and science policy: excellence wherever it is found (e.g. concentration of Framework Programme funding in EU core countries and regions)
- Regional structure and governance: lack of competence in and understanding of higher education – universities as a ‘black box’
- University Governance, Leadership and management

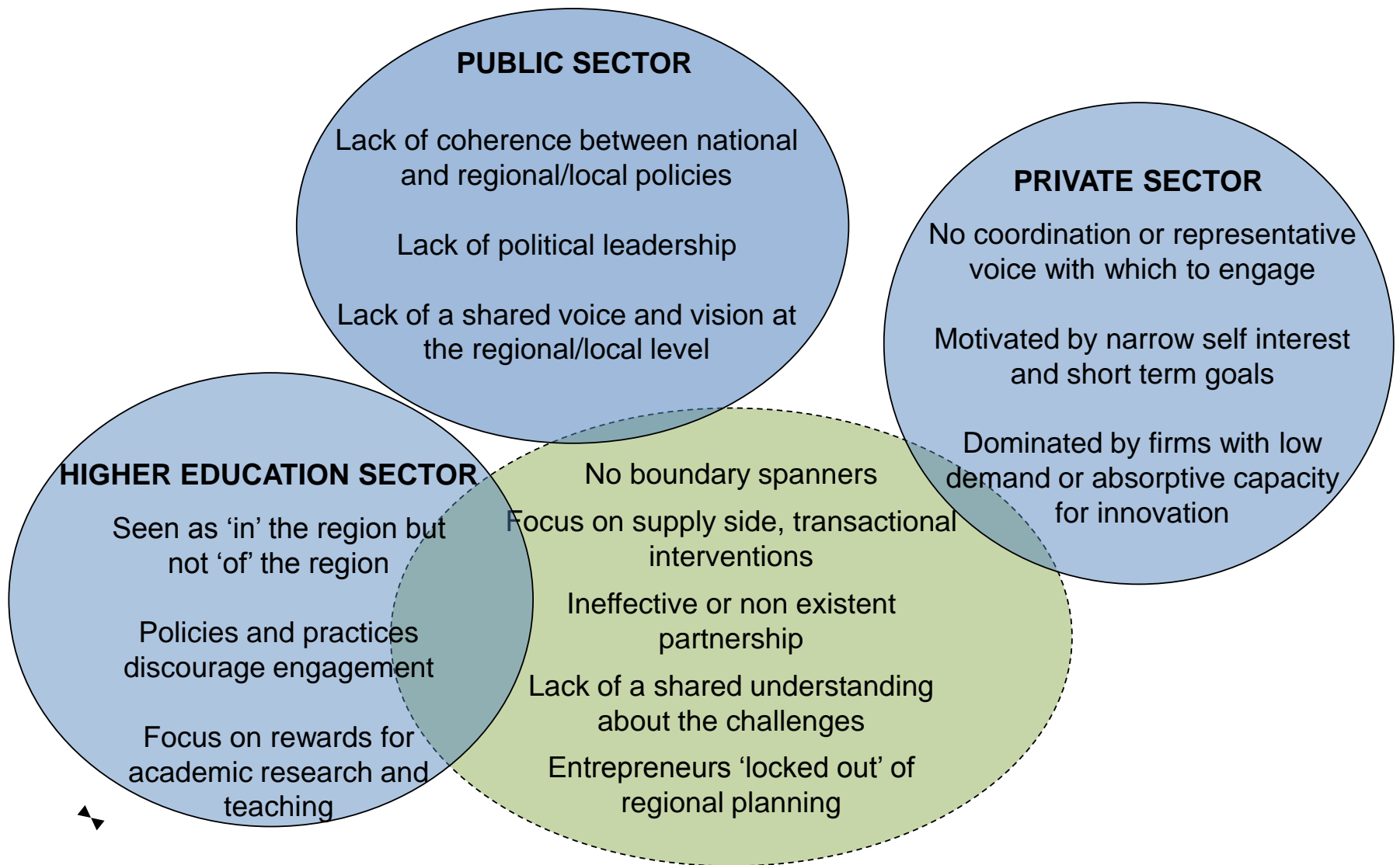
University governance, leadership and management

- Lack of institutional autonomy to respond to regional opportunities (e.g. in some countries limited control over estates, senior academic appointments etc.)
- Weak internal management in older research intensive universities
- Unrelated drivers for Teaching, Research and External Engagement
- Partnership working confined to senior management and / or isolated entrepreneurial academics
- Intermediate organisations (e.g. science parks, centres for continuing education) detached from academic heartland

The Traditional University Model



Leading to the disconnected region



Overcoming the barriers

A way ahead: New innovation models and institutional change in universities

- Societal challenges, social/open innovation, and the quadruple helix
- Responsible Research and Innovation
- The civic/engaged/challenge-driven university model

EU Open innovation model

- “Open Innovation 2.0 (OI2) is a new paradigm based on a ***Quadruple Helix Model*** where government, industry, academia and civil participants work together to ***co-create the future*** and drive structural changes far beyond the scope of what any one organization or person could do alone. This model encompasses also user-oriented innovation models to take full advantage of ideas' cross-fertilisation leading to experimentation and prototyping in real world setting”

Social innovation as processes and outcomes

- *“Social innovations are innovations that are social in both their ends and their means...new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations.*
- *The process of social interactions between individuals undertaken to reach certain outcomes is participative, involves a number of actors and stakeholders who have a vested interest in solving a social problem, and empowers the beneficiaries. It is in itself an outcome as it produces social capital”* (Board of European Policy Advisors, BEPA, 2010: 9-10)
- This can include regional problems

The quadruple helix

- “Quadruple Helix (QH), with its emphasis on broad cooperation in innovation, represents a shift towards systemic, open and user-centric innovation policy. An era of linear, top-down, expert driven development, production and services is giving way to different forms and levels of coproduction with consumers, customers and citizens.” (Arnkil, et al, 2010)
- “The shift towards social innovation also implies that the dynamics of ICT-innovation has changed. Innovation has shifted downstream and is becoming increasingly distributed; new stakeholder groups are joining the party, and combinatorial innovation is becoming an important source for rapid growth and commercial success. Continuous learning, exploration, co-creation, experimentation, collaborative demand articulation, and user contexts are becoming critical sources of knowledge for all actors in R&D & Innovation” (ISTAG 2010)

Responsible Research and Innovation in H2020

- *“In tomorrow’s Europe, science institutions and scientists engage with society, while citizens and civil society organisations engage with science; thereby contributing to a European society which is smart, sustainable and inclusive”*
- *“There is a need for a new narrative drawing on a broad-based innovation strategy encompassing both technological and non-technological innovation at all levels of European society, and with a stronger focus on the citizen and responsible and sustainable business - a **quadruple helix and place-based approach to science, research and innovation.**”*
- Horizon 2020 Science With and For Society Advisory Group

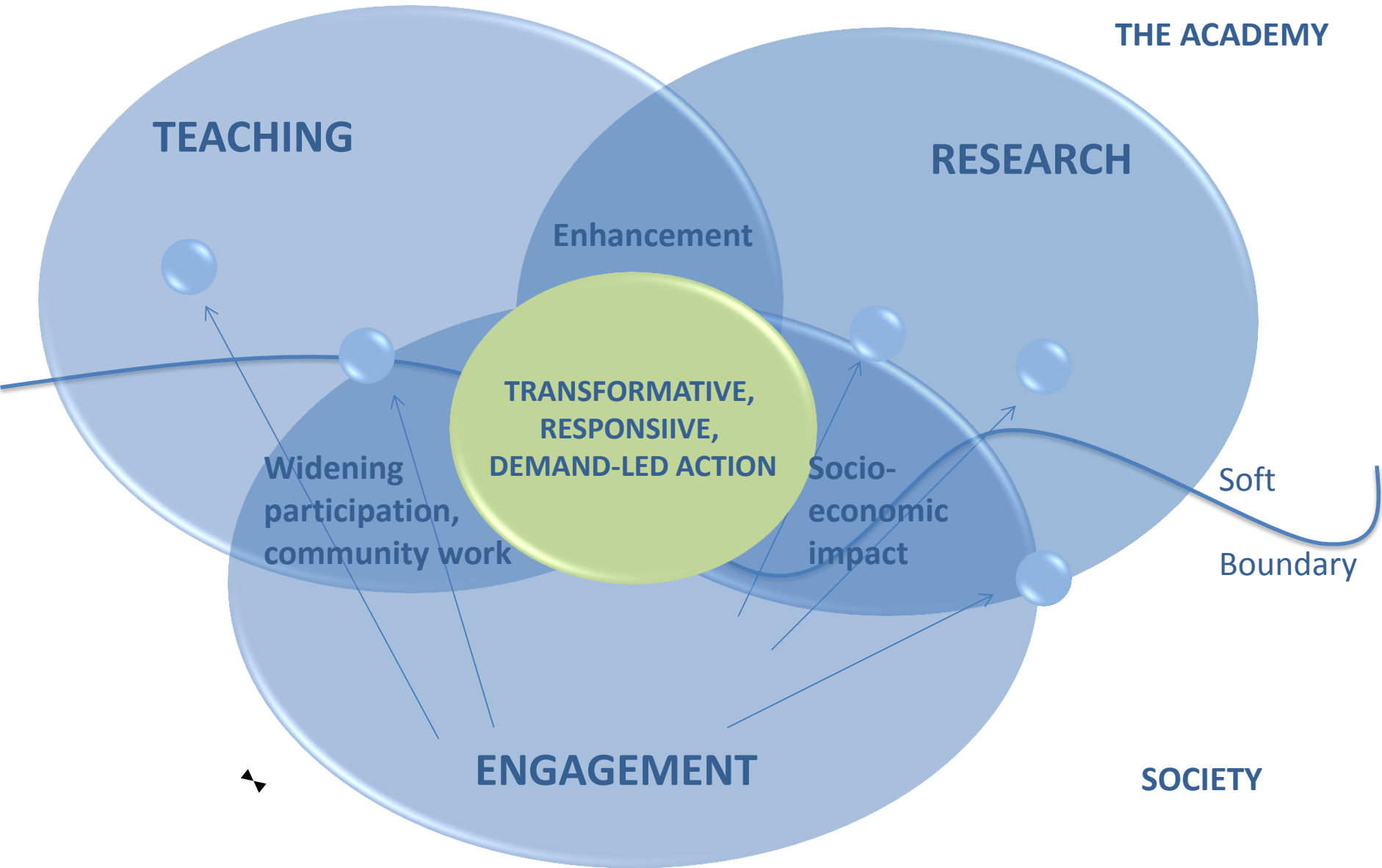
The Rome Declaration on RRI, 2015

“ Research and innovation deliver on the promise of smart, inclusive and sustainable solutions to our societal challenges; it engages new perspectives, new innovators and new talent from across our diverse European society, allowing to identify solutions which would otherwise go unnoticed; it builds trust between citizens, and public and private institutions in supporting research and innovation; and it reassures society about embracing innovative products and services; it assesses the risks and the way these risks should be managed”

The Rome Declaration and institutional change

- “We call on public and private Research and Innovation Performing Organisations to:
- *Implement institutional changes that foster Responsible Research and Innovation (RRI) by:*
- *Reviewing their own procedures and practices in order to identify possible RRI barriers and opportunities at organisation level;*
- *Creating experimental spaces to engage civil society actors in the research process as sources of knowledge and partners in innovation;*
- *Developing and implementing strategies and guidelines for the acknowledgment and promotion of RRI;*
- *Adapting curricula and developing training to foster awareness, know-how, expertise and competence of RRI;*
- *Including RRI criteria in the evaluation and assessment of research staff “*

A normative model :The Civic/ Engaged University



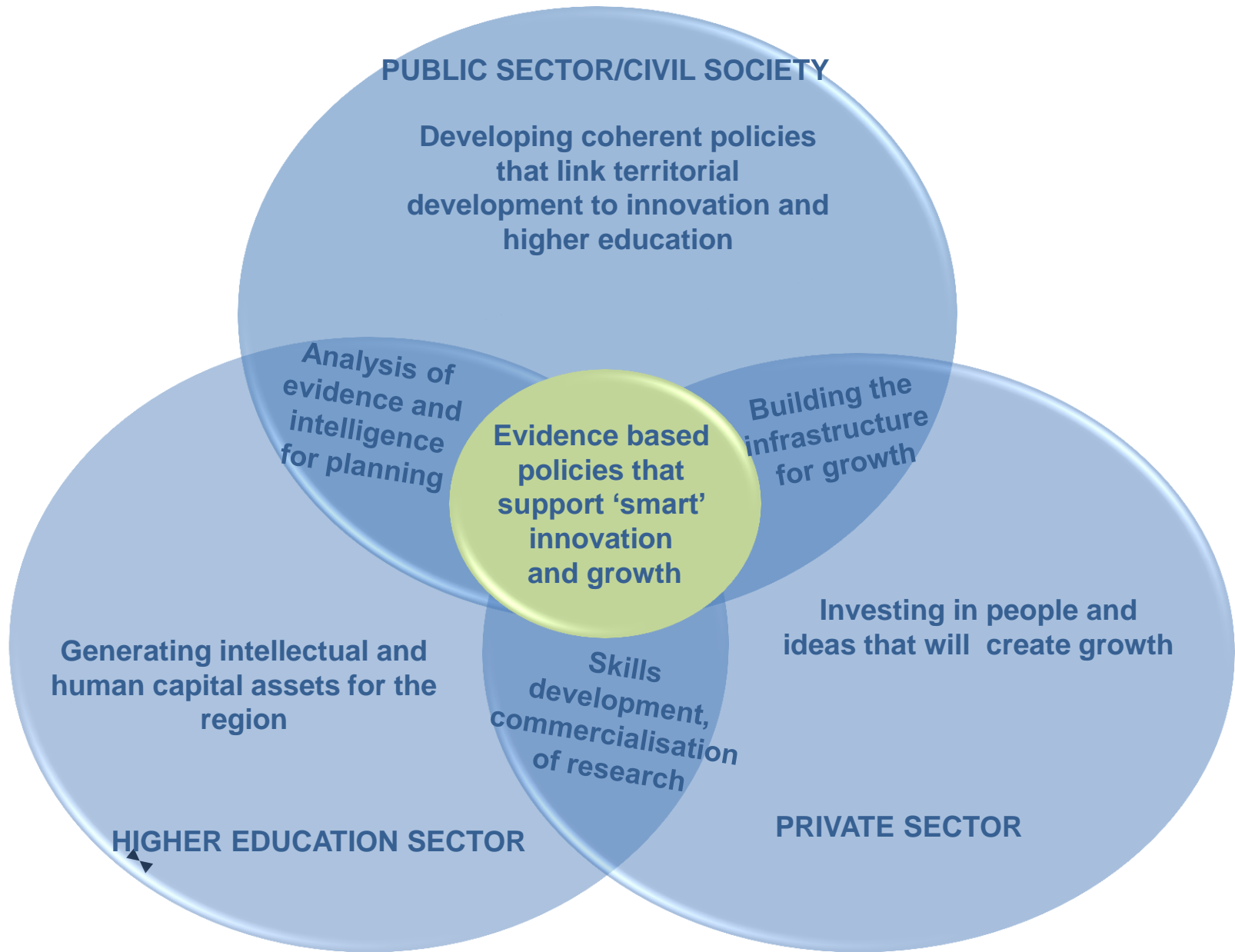
The region as a Living lab

- Living laboratories as geographically bounded innovation environments in which experimentation through in-situ interactions with users takes place
- *“The notion of treating our city and its region as a seedbed for sustainability initiatives is a potent one... the vision is of academics out in the community, working with local groups and businesses on practical initiatives to solve problems and promote sustainable development and growth’*
- *“This necessitates that we proceed in a very open manner, seeking to overcome barriers to thought, action and engagement; barriers between researchers and citizens, between the urban and the rural, between the social and natural sciences, between teaching research and enterprise”*

Co -Director of Newcastle Institute for Research on Environmental Sustainability

Quoted in Goddard and Vallance The University and the City (2013)

The 'connected' region – strong partnerships based on shared understanding of the challenges and how to overcome them



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The Challenge Driven University (NESTA)

“ Universities generally have been remarkably un-innovative in the way they organise their research and teaching. No country has explicitly prioritised innovation in processes of institutional governance and management, not only for individual universities but also in terms of the higher education system as a whole”.

“ There is a need for more systematic experimentation, assessment and the adoption of new ways of undertaking higher education in “the challenge driven university” which use/integrate real-life problems to fuel learning, and develop students by putting them up against problems and challenges for which there are no established answers.

“Students have to draw on many disciplines to solve them; they have to work in teams; and they have to collaborate with organisations outside higher education... and in the process students gain the fundamental skills required for success in the workplace: applied knowledge, critical thinking and communication”

The challenge based university

Igor Campillo & Jordi Campas

EUSKAMPAS

University of the Basque Country

... the way of
thinking



... the way of
acting



... the way of
being



The sum of all these shifts, of the way of thinking, acting and being, from EGO to **ECO**, characterised by **transdisciplinary complex collaborative challenge-pull actions bottom-up co-created by T-shaped people bridging** fragmented capacities, gives rise to a new type of university, the **challenge-based university**, in which students are considered education **prosumers** engaged with both local and global communities.